Water Analysis

VISOCOLOR® · VISOCOLOR®

Water analysis made easy

VISOCOLOR® tests for water analysis

- Various measuring methods and detection principles for many parameters
- Visual and photometric determination
- Reagent cases with individual combinations of different test kits

MACHEREY-NAGEL
www.mn-net.com
MN Since 1911

VISOCOLOR® test kits

VISOCOLOR® tests are compact and flexible test kits, which allow a chemical analysis without additional accessories and without the need for any prior experience. They are suitable for analysis in labs, in school or directly on-site. MACHEREY-NAGEL offers three product lines with different accuracies, precisions and sensitivities for universal use depending on the analytical requirement. For each product line there are colorimetric and titrimetric measuring methods to determine all important water and waste water parameters. The *VISOCOLOR*® test kits can be sold individually or in stable reagent cases as portable laboratories.

Convenient handling

- Simple chemical-analytical methods
- Instructions in different languages and with pictograms for safe and simple test performance
- Color-coded reagent bottles for clear identification of reagents
- Fast-dissolving reagents save time and facilitate the daily work

Reliable analysis

- Reaction principles based on internationally acknowledged regulations (DIN, EN, ISO)
- Maximum safety for the user and easy disposal
- Low susceptibility to interferences
- Additional increase of accuracy by photometric determination of *VISOCOLOR*® *ECO* tests with the photometers PF-12 and PF-3

Unique quality

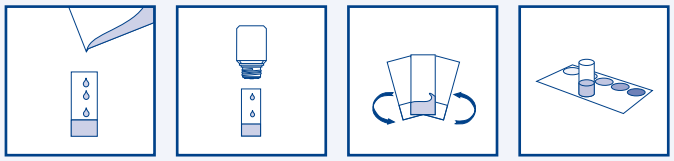
- *VISOCOLOR*® color charts are setted on the original colors of freshly produced standard solutions
- Finest measurement graduations by true color printing
- Precision and reproducibility by high printing quality

VISOCOLOR® alpha

Easy and compact

- Cost-efficient
- Handy packages
- Multicomponent reagents for reducing of required amount of reagent

Colorimetry with color chart



Fill the sample | Add reagent | Mix | Analyze

Titration with drop counting

Fill the sample | Add reagent | Color change

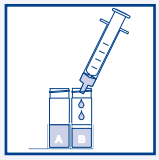
Count the drops: 1 ◊ = 1 measuring unit

VISOCOLOR® ECO

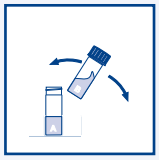
Accurate and precise

- Sharp color change due to separate indicator and titration solution
- Compensation of turbidity and colors
- Cost-efficient refill packs available

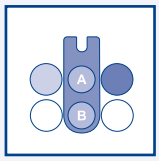
Colorimetry with color chart


Fill the sample


Add reagent

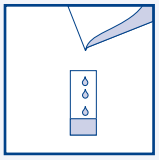

Mix


Wait

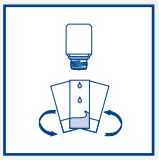

Analyze

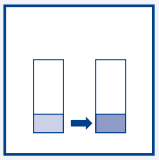
Evaluation with photometer PF-12 & PF-3

Titration with drop counting


Fill the sample


Add indicator


Add titration solution and mix


Color change

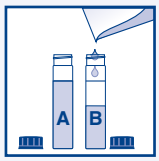
Count the drops: 1 = 1 measuring unit

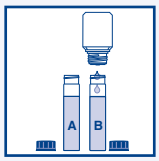
VISOCOLOR® HE

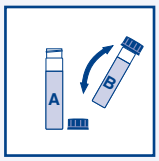
Highest sensitivity and accuracy

- Highest sensitivity (10 to 100 times)
- Narrow gradation and narrowly graduated syringe
- Compensation of turbidity and colors
- Cost-efficient refill packs available

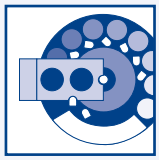
Colorimetry with color comparison disc


Fill sample

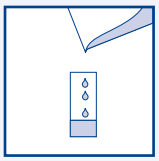

Add reagent


Mix


Wait

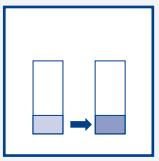

Analyze

Titration with graduated syringe


Fill the sample


Add indicator


Titration solution


Color change


Analyze

VISOCOLOR® reagent cases

Infinite options

- Rugged cases with premium foam inlays
- With and without photometer PF-12
- Pre-packed or empty cases for individual solutions

Accessories
manuals, color scales and accessories

Slip lid tubes
for qualitative test papers and indicator papers withour color scale

Reagent bottles
for *VISOCOLOR® alpha*, *ECO*, *HE* and QUANTOFIX®

Slid lid tubes
for pH-Fix

Aluminium tubes and snap-on lids
for semi-quantitative and qualitative test papers, test strips and pH-Fix PT tubes

Trick lid tubes
for pH indicator papers and qualitative test papers

VISOCOLOR® reagent case without photometer

***VISOCOLOR®* reagent case for soil analysis** — **REF 931 601**

- Incl. all reagents, instruments and additional tools to produce soil extracts and determine soil structure, potassium, pH, phosphate, ammonium, nitrite and nitrate

***VISOCOLOR® ECO* reagent case** — **REF 931 301**

- For determination of ammonium, carbonate hardness, total hardness, nitrate, nitrite, pH and phosphate

***VISOCOLOR® ECO* reagent case (empty)** — **REF 931 303**

- For individual equipment with 8 different *VISOCOLOR® ECO* tests

***VISOCOLOR®* reagent case** — **REF 931 304**

- For determination of alkalinity, ammonium, total hardness, nitrite, pH, phosphate, oxygen, temperature

***VISOCOLOR®* reagent case (empty)** — **REF 931 305**

- For individual equipment with *VISOCOLOR® ECO* tests, *VISOCOLOR® HE* tests, *VISOCOLOR® alpha* tests, pH indicator papers, pH fix test strips, qualitative and semi-qualitative test papers and test strips

VISOCOLOR® reagent case with photometer PF-12

***VISOCOLOR®* reagent case "Environmental analysis"** — **REF 914 303**

- For determination of ammonium, carbonate hardness, iron, total hardness, nitrate, nitrite, pH, phosphate incl. photometer PF-12

***VISOCOLOR®* reagent case with photometer PF-12** — **REF 914 301**

- For individual equipment with *VISOCOLOR® ECO* tests, *VISOCOLOR® HE* tests, *VISOCOLOR® alpha* tests, pH indicator papers, pH fix test strips, qualitative and semi-qualitative test papers and test strips

Maximum flexibility - Compact photometer PF-12

Adapted to our customers´ requirements the PF-12 impresses with modern design and precise analytics. More than 100 preprogrammed methods, automatic wavelenght adjustment and the intuitive user guidance allow fast and easy operation.

Experience flexibility

- More than 100 preprogrammed *VISOCOLOR® ECO* and *NANOCOLOR®* tube tests
- Programmable for 20 user-defined methods
- Photometric basic functions: absorbance, transmission, factor and standard

Save time

- Operation without complex and time-consuming training
- Backlit graphic display with self-explanatory user guidance
- Progressively designed optics is insensitive to external light and makes measuring straightforward

Assure results

- GLP-conform storage of results
- Fast and easy access to stored results and data sets
- Comfortable data export with included *NANOCOLOR®* software DVD

Photometer PF-12 **REF 919 200**
Incl. Software, manual, batteries, empty test tubes, funnel, beaker, syringe, USB cable, calibration cuvette and certificate in rugged case

Small, strong, smart – Compact photometer PF-3

The smallest and youngest member of the MACHEREY-NAGEL photometer family, the new compact photometer PF-3, is ideally suited for mobile use directly at the point of interest. As the PF-3 is equipped with 3 different wavelengths, it will be available in multiple versions for different applications. Also for the PF-3 MACHEREY-NAGEL offers numerous reagent cases.

Small and though

- Especially handy and light by compact dimensions
- Water proof according to IP 68
- Shock-resistant optics

Easy and convenient

- Fully developed menu structure using just 4 buttons
- Test selection within seconds
- Optional storage for just one 0-measurement

Smart and clever Add new tests and parameters anytime

- Power supply and data transfer via USB port
- Storage of 50 measurements

Compact photometer PF-3 (Version A) (Cl_2, pH, Cya, TA, ClO_2, F^-, Fe) **REF 934 102**
Incl. manual, batteries, certificate and accessories in rugged case

Compact photometer PF-3 (Version E) (NH_4-N, K^+, NO_3-N, PO_4-P) **REF 934 202**
Incl. manual, batteries, certificate and accessories rugged case

More information and a complete list of all versions are available on ***www.mn-net.com/PF-3*** or on request from MACHEREY-NAGEL.

Program VISOCOLOR®

Ordering information

Test	Range (visual)	Type	No. of tests	REF Test kit	REF Refill pack
Acidity AC 7* (base capacity)	0.2–7.2 mmol/L H^+ [1]	*HE*	200	**915 006**	**915 206**
Alkalinity AL 7* (total)	0.2–7.2 mmol/L OH^- [1]	*HE*	200	**915 007**	**915 207**
Alkalinity TA [3] NEW!	0.10–5.00 mmol/L H^+	*ECO*	100	–	**931 204**
Alkalinity (p/m-value)	see Carbonate hardness C 20				
Aluminum	0.10–0.50 mg/L Al^{3+}	*ECO*	50	**931 006**	**931 206**
Ammonium 15*	0.5–15 mg/L NH_4^+	*ECO*	50	**931 010**	**931 210**
Ammonium*	0.2–3 mg/L NH_4^+	*alpha*	50	**935 012**	–
Ammonium 3*	0.2–3 mg/L NH_4^+	*ECO*	50	**931 008**	**931 208**
Ammonium*	0.02–0.50 mg/L NH_4^+	*HE*	110	**920 006**	**920 106**
Bromine [2] [3] NEW!	0.10–13.00 mg/L Br_2	*ECO*	200	–	**931 211**
Calcium CA 20*	0.6–25.0 °e / 0.1–3.6 mmol/L Ca^{2+} [1]	*HE*	200	**915 010**	**915 210**
Calcium*	1 drop ≙ 5 mg/L Ca^{2+}	*ECO*	100	**931 012**	–
Carbonate hardness*	1 drop ≙ 1.25 °e ≙ 17.8 mg/L $CaCO_3$	*alpha*	100	**935 016**	–
Carbonate hardness*	1 drop ≙ 1.25 °e ≙ 17.8 mg/L $CaCO_3$	*ECO*	100	**931 014**	–
Carbonate hardness C 20* (p/m-value)	0.6–25.0 °e / 0.2–7.2 mmol/L H^+ [1]	*HE*	200	**915 003**	**915 203**
Chloride*	1–60 mg/L Cl^-	*ECO*	90	**931 018**	**931 218**
Chloride CL 500*	5–500 mg/L Cl^- [1]	*HE*	300	**915 004**	**915 204**
Chlorine, free	0.25–2.0 mg/L Cl_2	*alpha*	150	**935 019**	–
Chlorine 2*, free + total	0.1–2.0 mg/L Cl_2	*ECO*	150	**931 015**	**931 215**
free Chlorine 2*	0.1–2.0 mg/L Cl_2	*ECO*	150	**931 016**	**931 216**
Chlorine 6, free + total [2] [3]	0.05–6.00 mg/L Cl_2	*ECO*	200	–	**931 217**
free Chlorine 6 [2] [3]	0.05–6.00 mg/L Cl_2	*ECO*	400	–	**931 219**
Chlorine*	0.02–0.60 mg/L Cl_2	*HE*	160	**920 015**	**920 115**
Chlorine + pH	see Swimming pool				
Chlorine dioxide*	0.2–3.8 mg/L ClO_2	*ECO*	150	**931 021**	**931 221**
Chromium(VI)*	0.02–0.50 mg/L Cr(VI)	*ECO*	140	**931 020**	**931 220**
Copper	0.1–1.5 mg/L Cu^{2+}	*ECO*	100	**931 037**	**931 237**
Copper	0.04–0.50 mg/L Cu^{2+}	*HE*	150	**920 050**	**920 150**
Cyanide*	0.01–0.20 mg/L CN^-	*ECO*	100	**931 022**	**931 222**
Cyanide*	0.002–0.04 mg/L CN^-	*HE*	50	**920 028**	**920 128**
Cyanuric acid	10–100 mg/L Cya	*ECO*	100	**931 023**	**931 223**
DEHA* (diethylhydroxylamine)	0.01–0.30 mg/L DEHA	*ECO*	125	**931 024**	**931 224**
Fluoride [2] [3]	0.1–2.0 mg/L F^-	*ECO*	150	–	**931 227**
total Hardness*	1 drop ≙ 1.25 °e ≙ 17.8 mg/L $CaCO_3$	*alpha*	100	**935 042**	–
total Hardness*	1 drop ≙ 1.25 °e ≙ 17.8 mg/L $CaCO_3$	*ECO*	110	**931 029**	–
total Hardness H 20 F*	0.6–25.0 °e / 0.1–3.6 mmol/L Ca^{2+} [1]	*HE*	200	**915 005**	**915 205**
total Hardness H 2*	0.06–2.50 °e / 0.01–0.36 mmol/L Ca^{2+} [1]	*HE*	200	**915 002**	**915 202**
residual Hardness *	0.05–0.37 °e	*alpha*	200	**935 080**	–
Hydrazine*	0.05–0.40 mg/L N_2H_4	*ECO*	130	**931 030**	**931 230**
Iron 1*	0.04–1.0 mg/L Fe	*ECO*	200	**931 025**	**931 225**
Iron 2	0.04–1.0 mg/L Fe	*ECO*	100	**931 026**	**931 226**
Iron	0.01–0.20 mg/L Fe	*HE*	300	**920 040**	**920 140**

The measurement range of photometric determination with photometer PF-3 and PF-12 can be different.

[1] For titration test kits the range can be increased using additional titration solution.
[2] only for the photometric determination with PF-12
[3] only for the photometric determination with PF-3
[4] based on the chemical procedures of the German Standard Methods (DEV)
* This product contains harmful substances which must be specially labeled as hazardous. For detailed information please see MSDS.

Program *VISOCOLOR®*

Ordering information

Test	Range (visual)	Type	No. of tests	REF	
				Test kit	Refill pack
Manganese*	0.1–1.5 mg/L Mn	*ECO*	70	**931 038**	**931 238**
Manganese*	0.03–0.50 mg/L Mn	*HE*	100	**920 055**	**920 155**
Nickel*	0.1–1.5 mg/L Ni^{2+}	*ECO*	150	**931 040**	**931 240**
Nitrate*	2–50 mg/L NO_3^-	*alpha*	100	**935 065**	**–**
Nitrate*	1–120 mg/L NO_3^-	*ECO*	110	**931 041**	**931 241**
Nitrite*	0.05–1.0 mg/L NO_2^-	*alpha*	200	**935 066**	**–**
Nitrite*	0.02–0.5 mg/L NO_2^-	*ECO*	120	**931 044**	**931 244**
Nitrite*	0.005–0.10 mg/L NO_2^-	*HE*	150	**920 063**	**920 163**
pH 5–9*	pH 5.0–9.0	*alpha*	200	**935 075**	**–**
pH 4.0–9.0*	pH 4.0–9.0	*ECO*	400	**931 066**	**931 266**
pH 4.0–10.0*	pH 4.0–10.0	*HE*	500	**920 074**	**920 174**
pH 6.0–8.2 [2) 3)]	pH 6.0–8.2	*ECO*	150	**–**	**931 270**
Phosphate*	2–20 mg/L PO_4^{3-}	*alpha*	70	**935 079**	**–**
Phosphate*	0.2–5 mg/L PO_4-P	*ECO*	80	**931 084**	**931 284**
Phosphate*	0.05–1.0 mg/L P	*HE*	300	**920 082**	**920 182**
Phosphate* (DEV) [4)]	0.01–0.25 mg/L P	*HE*	100	**920 080**	**920 180**
Potassium*	2–15 mg/L K^+	*ECO*	60	**931 032**	**931 232**
Residual hardness	see Hardness (residual)				
Oxygen*	1–10 mg/L O_2	*ECO*	50	**931 088**	**931 288**
Oxygen SA 10*	0.2–10 mg/L O_2 [1)]	*HE*	100	**915 009**	**915 209**
Silica* / silicon	0.2–3.0 mg/L SiO_2	*ECO*	80	**931 033**	**931 233**
Silica* / silicon	0.01–0.30 mg/L Si	*HE*	120	**920 087**	**920 187**
Sulfate*	25–200 mg/L SO_4^{2-}	*ECO*	100	**931 092**	**931 292**
Sulfide*	0.1–0.8 mg/L S^{2-}	*ECO*	90	**931 094**	**931 294**
Sulfite*	1 drop ≙ 1 mg/L SO_3^{2-}	*ECO*	60	**931 095**	**–**
Sulfite SU 100*	2–100 mg/L SO_3^{2-} [1)]	*HE*	100	**915 008**	**915 208**
Swimming pool* (Chlorine + pH)	0.1–2.0 mg/L Cl_2 pH 6.9–8.2	*ECO*	150 150	**931 090**	**931 290**
Zinc*	0.5–3 mg/L Zn^{2+}	*ECO*	120	**931 098**	**931 298**

The measurement range of photometric determination with photometer PF-3 and PF-12 can be different.

[1)] For titration test kits the range can be increased using additional titration solution.
[2)] only for the photometric determination with PF-12
[3)] only for the photometric determination with PF-3
[4)] based on the chemical procedures of the German Standard Methods (DEV)

* This product contains harmful substances which must be specially labeled as hazardous. For detailed information please see MSDS.

Applications

Universally applicable


Soil analysis


Aquaculture


Breweries


Chemical industry


Electroplating industry


Food & beverage industries


Leather industry


Metal processing industry


Milk industry


Pool & spa care


Textile industry


Cement & concrete production

Customized case solutions

Catering to our individual customer needs is one of the great importance to MACHEREY-NAGEL. Even though our case solutions provide a high level of flexibility, we recognize that some customers may have specific requirements outside our existing case solutions. Therefore, we offer entirely individual solutions with a foam inlay designed exactly to your specifications and testing needs. Starting with a minimum of 50 cases, we can provide you with a case that perfectly fits your personal requirements. We also offer readily packed cases starting at a minimum quantity of 50 cases as well.
Thus, within our highly flexible case range, we can provide virtually any customer with the perfect testing and transportation solution.

Contact

Technical support and customer service
for Filtration, Rapid Tests, Water Analysis:

+49 24 21 / 969 161
+49 24 21 / 969 138
+49 24 21 / 969 190
+49 24 21 / 969 174
+49 24 21 / 969 340
+49 24 21 / 969 187
csc@mn-net.com

Your local distributor:

Image Credits: © sherez, dicktraven, christian42, Janine Fretz Weber, Jorge Gonzalez, Michael Fritzen, Maria.P./ Fotolia.de

KATEN100058/VISOCOLOR en2/2/0/11.2013 PD
Printed in Germany